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Terrestrial Isopod Crustaceans from Hachijo Island, Izu Islands, middle Japan*

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伊豆諸島八丈島の陸産等脚目甲殻類

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従来，八丈島の陸産等脚目甲殻類相についてのまとまった報告は無かったが，この度，片倉康寿博士が5度以上八丈島に渡島され，等脚目甲殻類の標本を採取されたが，その標本が筆者に送られ，調査が行われた。また，筆者も1998年に海産等脚目甲殻類調査の際に採集・調査した陸産種の標本があり，富山市科学文化センター所蔵標本とともに筆者がこれらの標本を併せて調査した結果，15種が確認された。

この中には*Styloniscus katakurai*（和名：カタクラクキワラジムシ：新称）. *Burmoniscus hachijoensis*（和名：ハチジョウモリワラジムシ：新称）, *Spherillo hachijoensis*（和名：ハチジョウコシビロダンゴムシ：新称），*Spherillo punctatus*（和名：ハンテンコシビロダンゴムシ：新称）の4新種が含まれていることが判明し記載した。

また少数のメスのだけしか調査することが出来なかった *Detonella* 属の1種と *Littorophiloscia* 属の1種ならびに *Nagurus* 属の1種についても形質を記載した。さらに，*Lucasioides hachijoenesis* と同定される標本が採集されたので，今まで記載されなかった形質について記載した。今回研究された標本のうちホロタイプを含む標本類は富山市科学文化センターに保管されるが，タイプシリーズの一部は，国立科学博物館ならびに大阪市立自然史博物館に保管される。

Key words：isopoda, new species, Hachijo, taxonomy
キーワード：等脚目，ワラジムシ，新種，八丈島，分類学

Hachijo Island, located at 287 km south of Tokyo, is a volcanic island, therefore, the terrestrial isopod fauna has been considered to be interesting. But hitherto, no systematically zoological survey on terrestrial isopod crustaceans has been carried out in this island, then, until now, Dr.Yoshiyasu Katakura, the Professor emeritus of Keio University, visited Hachijo Island more than five times and collected many specimens.

The specimens were sent to me for identification, and I examined them together with specimens collected by myself in 1998 and deposited at Toyama Science Museum. As the results of my investigation, they represented 15 species including four new species: *Styloniscus katakurai, Burmoniscus hachijoensis, Spherillo hachijoensis*, and *Spherillo punctatus*. As to the following species belonging to the genera: *Littorophiloscia, Detonella* and *Nagurus*, I could not determine the species name, because enough specimens are available to me. *Lucasioides hachijoenesis* was redescribed in this paper.

* Contributions from the Toyama Science Museum, No.330

Fig.1 Map showing main sampling sites.

Order Isopoda

Suborder Oniscidea

Family Ligiidae

***Ligia hachijoensis* Nunomura, 1999**

Material examined: 1♂6♀♀, Kaminto, Oct.7,2003, coll.Yasutoshi Katakura; 9exs, Yaene, May 27, 1998, coll. Noboru Nunomura; 1♀, Ookagou, Mar 21, 1988, coll. Yasutoshi Katakura; 1♀, Yomaura, May 24, 1998, coll. Noboru Nunomura.

Family Trichoniscidae

***Haplophthalmus danicus* Budde-Lund, 1879**

Material examined: 1♀, Ookagou, Mar 21, 1988, coll. Yasutoshi Katakura; 1young, Borawazawa, May 26, 1998, coll. Noboru Nunomura; 8♀♀, Hachijo-fuji, ichi-no-torii, July 25, 1979, coll. Masami Hasegawa and Hideaki Watanabe.

Family Olibrinidae

Olibrinus hachijoensis (Nunomura, 1999)

Marinoniscus hachijoensis Nunomura, 1999, pp. 30-32, fig. 10.

Material examined: 9exs, intertidal zone of Okataura, May 29, 1998, coll. Noboru Nunomura.

Remarks: At first, the present species was described as *Marinoniscus hachijoensis* (Nunomura, 1999). Then this genus was moved to the genus *Olibrinus* (Schmalfuss, 2005).

Family Scyphacidae

Detonella sp.

(Fig. 2)

Material examined: 2♀♀ (3.0-3.2 mm in body length), Oogataura, May 25, 2006, coll.Yasutoshi Katakura.

Description: Body 3.0 times as long as wide excluding uropods and antennae. Color white in alcohol. Surface almost smooth. Noduli lateralis indistinct. Cephalon rectangular. Eyes rather small in size and each eye with about 16 ommatidia. Pleotelson with relatively short straight posterior margin.

Antennule (Fig.2B): segment 1 rectangular; segment 2 rectangular, with a relatively stout seta on distal margin; segment 3 narrow, with 5 aesthetascs on lateral and distal margin. Antenna (Fig.2C) composed of 5 peduncular and 4 flagellar segments; segments 3 and 4 with many aesthetascs on distal margins. Right mandible (Fig.2D): pars incisiva 3-toothed; lacinia mobilis 3-toothed; a hairy bristle; processus molaris represented by a single seta. Left mandible (Fig.2E): pars incisiva 3-toothed; lacinia mobilis chitinized and 3-toothed; 3 hairy bristles; processus molaris represented by a single seta. Maxillula (Fig.2F): outer lobe with 11 teeth at the tip; inner lobe with 2 plumose setae at the tip. Maxilla broad and weakly bilobed in two lappets. Maxilliped. (Fig.2G): endite triangular, with much hair; palp triangular, with much hair; only segment 1 separated.

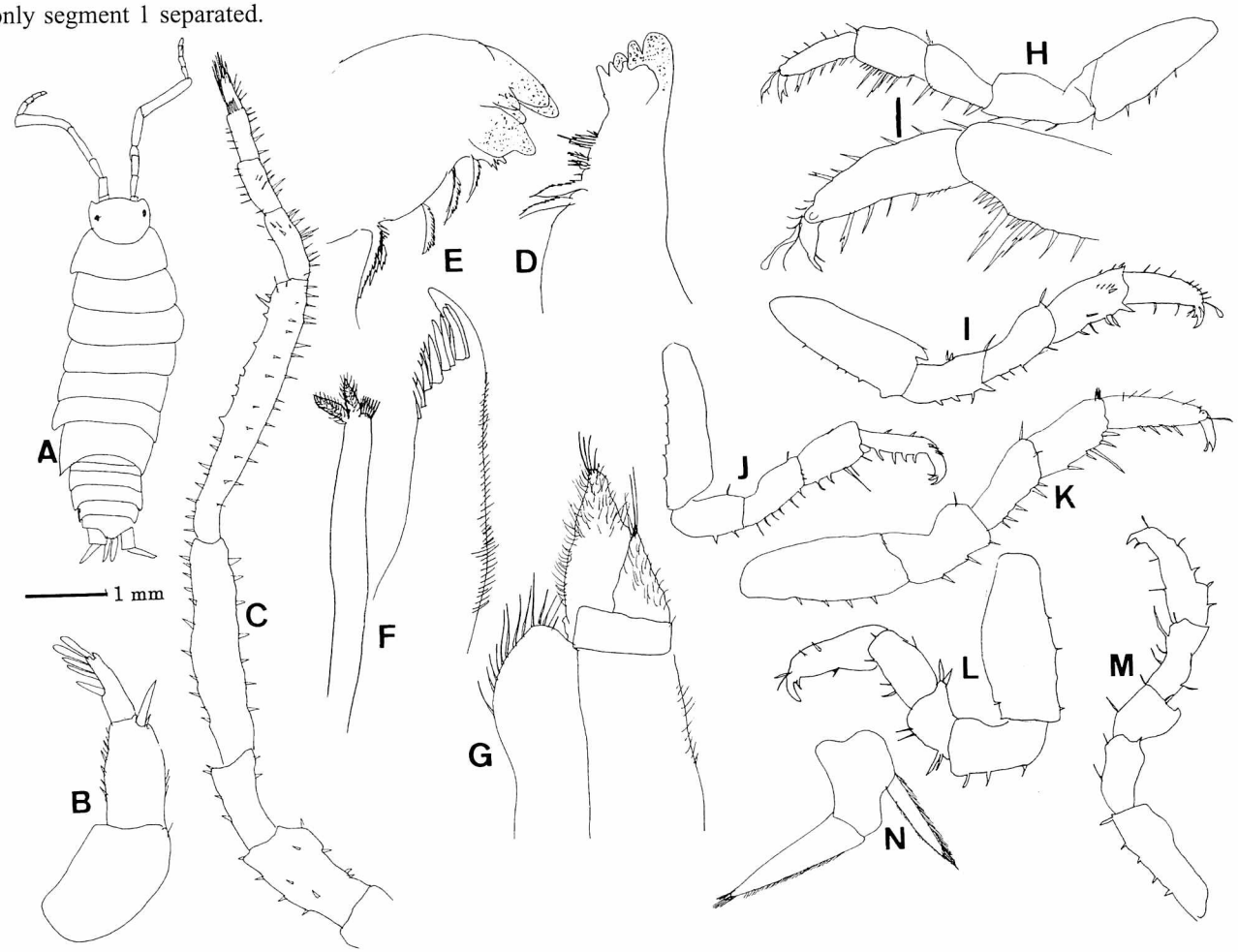

Fig.2 *Detonella* sp.
A : Dorsal view. B : Antennule. C:Antenna. D : Right mandible. E: Left mandible. F:Maxillula. G.Maxilliped. H: Pereopod 1. I:Pereopod 2. J: Pereopod 3. K:Pereopod 4. L:Pereopod 6. M:Pereopod 7. N:Uropod (All: A female).

Pereopod 1 (Fig. 2H): basis rectangular, 3.5 times as long as wide, with 4-5 setae on inner margin; ischium half length of basis, with 3-4 setae on inner margin; merus as long as ischium, with 3 setae on inner margin and 1-2 setae at outer distal area; carpus almost as long as merus, with 4 longer and several shorter setae on inner margin; propodus slender, with 6 setae on inner margin and 6-10 setae on outer margin; dactylus bifid, with a long a seta.

Pereopod 2 (Fig. 2I): basis 2.7 times as long as wide, with 5-6 short setae on inner margin and a relatively wide protrusion at outer distal area; ischium 0.4 times as long as basis, with 4 setae on inner margin and 3 setae on outer margin; merus as long as ischium, with 4 setae on inner margin and a seta at outer distal angle; carpus a little longer than merus, with 5-6 setae on inner margin and 3 setae on distal margin; propodus as long as carpus, with 2-3 setae on inner margin and 8-9 setae on outer margin; dactylus bifid.

Pereopod 3 (Fig.2J): basis 4 times as long as wide; ischium 45% as long as basis, with 2 setae on inner margin and a seta on outer margin; merus as long as ischium, with 6 setae on inner margin and a seta on outer margin; carpus as long as merus, with 4 setae on inner margin; propodus a little longer than carpus, with 4 setae on inner margin and 6 setae on outer margin; dactylus bifid. Unfortunately pereopod 4 missing.

Pereopod 5 (Fig. 2K): basis 2.5 times as long as wide, with 4 setae on inner margin; ischium 55% as long as basis, with 3 setae on inner margin and a seta at outer distal angle; merus as long as ischium, with 5 setae on inner margin a seta on outer distal area; carpus as long as merus, with 5 setae on inner margin and a seta at outer distal angle; propodus 1.2 times as long as carpus, with 4 setae on inner margin and 5-6 short setae on outer margin; dactylus bifid.

Pereopod 6 (Fig.2L): basis 2.5 times as long as wide; ischium 0.6 times as long as basis, 3 setae on inner margin; merus 55% as long as ischium, with 4 setae on inner margin and 2 setae at outer distal angle; carpus 1.7 time longer than carpus, with 3-4 setae on inner margin; propodus with 2 setae on outer margin; dactylus bifid.

Pereopod 7 (Fig.2M): basis 3.3 times as long as wide, with 5 setae on inner margin; ischium 0.7 times as long as basis, with 2 setae on inner margin; merus as long as ischium, with 2 setae on inner margin and a seta at outer distal area; carpus, as long as merus, with 4 setae on inner margin and a seta on outer margin; propodus as long as carpus, with 2 setae on inner margin, with 4 setae on outer margin; dactylus bifid.

Pleopods rounded triangular. Uropod (Fig.2N): long and occupies 40% of the body length. basis 42% of the endopod in length; exopod 55% of endopod in length.

Remarks: The present species is similar to *D.japonica*, but it is difficult from *japonica* in the following features: (1) shape of antennae, (2) more setose maxilliped, (3) presence of stouter setae, instead of simple ones and (4) slenderer antennule.

Unfortunately only two female specimens were available to me; therefore, I refrained to establish a new species.

***Armadilloniscus brebvinaseus* Nunomura, 1984**

Material examined: 1♀, Oogataura, Oct 7, 2003. coll. Yasutoshi Katakura.

Family Alloniscidae

***Alloniscus balssi* (Verhoeff, 1928)**

Material examined:8♂♂10♀♀,Taredo, May 25,1998, coll. Noboru Nunomura;4♂♂6♀♀, Ootagou, Mar. 21, 1988.coll. Yasutoshi Katakura; 3♂♂3gravid♀♀,Yokomaura, May 23, 2006 coll, Yasutoshi Katakura; 2♀♀, Sueyoshi, Oct. 6, 2003. coll. Yasutoshi Katakura; 9♂♂8♀♀, Nakanogou, Oct. 24, 2001.coll. Yasutoshi Katakura.

Family Stylonicsidae

***Styloniscus katakurai* n. sp.**

(Japanese name: Katakura-kuki-warajimushi, new)

(Fig. 3)

Material examined: 4♂♂(1♂, 3.6mm in body length, 3♂♂ paratypes, 2.5-2.9mm in body length) and 4♀♀(1 o vigerous♀, 3.6mm in body length, 3♀♀ paratypes, 2.2～3.3mm in body length) Oosato, Oct. 25, 2001, coll. Yasutoshi

Katakura Type series will be deposited as follows: Holotype (TOYA Cr-13252), allotype (TOYA Cr-13253) and 2 paratypes (TOYA Cr-13254~13255) at Toyama Science Museum, 2 paratypes(NSM-Cr-16858) at National Science Museum, Tokyo and 2 paratypes (OMNH Ar-7347～7348) at Osaka Museum of Natural History.

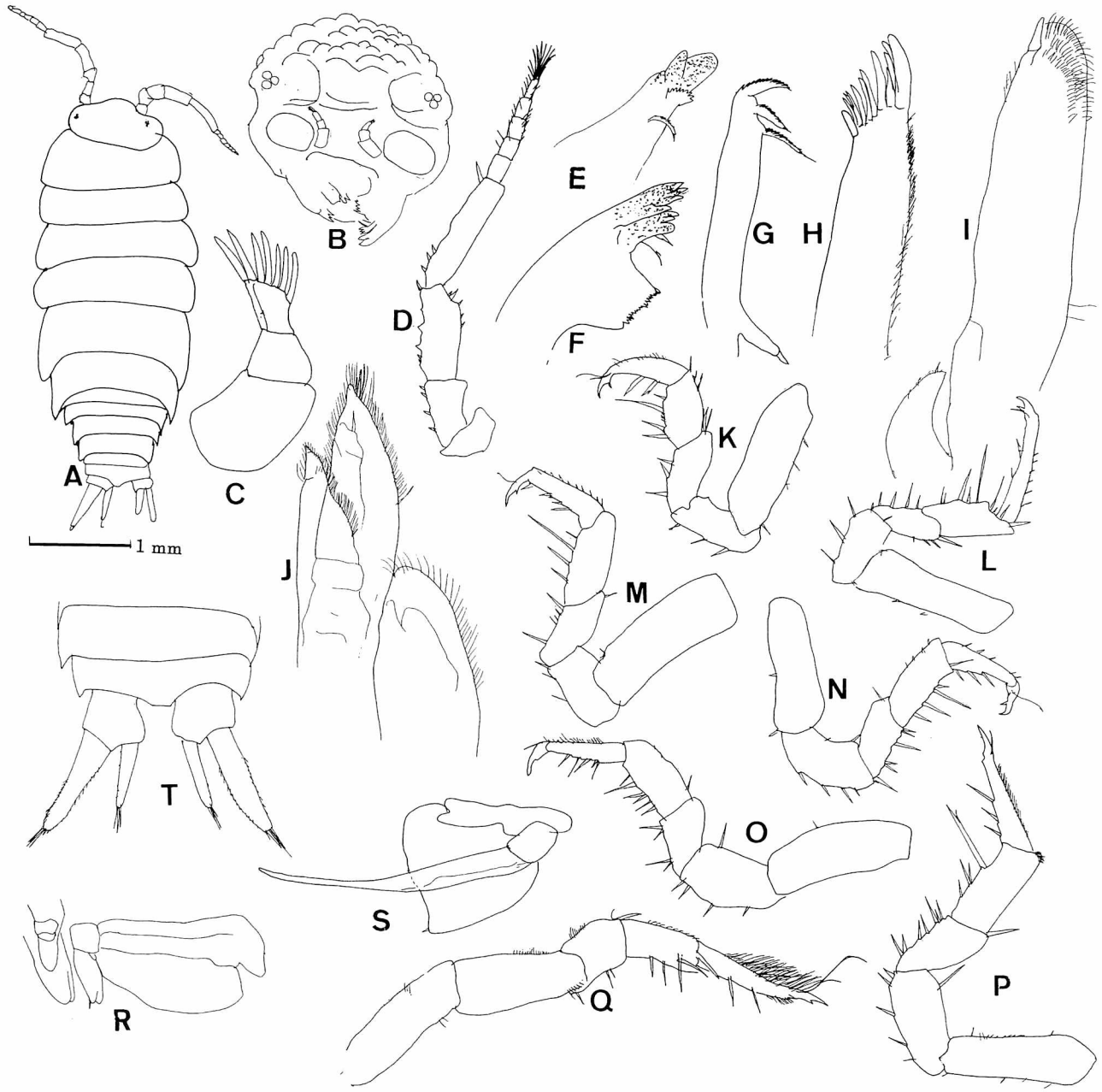

Fig.3 ***Styloniscus katakurai*** **n. sp.**
A.Dorsal view. B: Frontal view of cephalon. C: Antennule. D:Antenna. E : Right antenna. F: Left antenna. G: Inner lobe of maxillula. H: Outer lobe of the same. I: Maxilla. J: Maxilliped. K-Q: Pereopods 1-7. R: Penes and pleopod 1. S:Pleopod 2 (All: Holotype male).

Description: Body 2.3 times as long as wide, excluding uropods and antennae. Color blackish brown in alcohol. Surface almost smooth, with sparsely scattered minute granules. Cephalon round. Eyes small, each eye with about 3 ommatidia Pleotelson (Fig. 3T) with protruded tip. Antennule (Fig.3C) short and 3-segmented; segment 1 rectangular; segment 2 rectangular; terminal segment with 7 aesthetascs at the tip. Antenna (Fig.3D) long, reaching the middle part of the second pereonal somite, and composed of 5 peduncular and 5 flagellar segments; terminal flagellar segment with many setae.

Right mandible (Fig.3E): pars incisiva 3-toothed; lacinia mobilis thin, with 9-10 small teeth; a plumose seta; processus molaris wide. Left mandible (Fig.3F): pars incisiva 4-toothed; lacinia mobilis chitinized and 3-toothed; 2 plumose setae behind the lacinia mobilis; processus molaris wide. Maxillula: inner lobe (Fig.3.G) with 3 plumose setae at the tip; outer lobe (Fig.3.H) with 12 teeth at the tip. Maxilla (Fig.3 I) relatively narrow; inner lobe with a tooth. Maxilliped (Fig.3J): endite slender, tapering toward the tip, with much hair; palp triangular, with much hair.

Pereopod 1 (Fig.3K): basis rectangular, 2.9 times as long as wide, with 3-4 setae on inner margin; ischium 0.6 times as long as basis, with 3 setae on inner margin and a seta outer margin; merus 0.7 times as long as wide, with 3 setae on inner margin and 2 setae on outer distal angle; carpus as long as merus, with 4 long setae on inner margin and 3-4 setae on outer margin; propodus as long as carpus, with 2 setae on inner margin; dactylus bifid.

Pereopod 2 (Fig.3L): basis 3.3 times as long as wide, with 2 setae on inner margin; ischium 0.6 times as long as wide, with 3 setae on inner margin; merus 0.8 times as long as ischium, with 4 setae on inner margin and 4 setae on outer margin; carpus 1.4 times as long as merus, with 5-6 long setae on inner margin and 4-5 setae on distal margin; propodus 1.6 times longer than carpus, with 2 setae on inner margin and 5-7 setae on outer margin; dactylus bifid.

Pereopod 3 (Fig.3M): basis 2.9 times as long as wide; ischium half length of basis, with 3 setae on inner margin; merus 2/3 as long as merus, with 5-6 setae on inner margin and a seta at outer distal angle; carpus 1.3 times longer than merus, with 4 long setae on inner margin; propodus as long as carpus, with 3 setae on inner margin and 9-10 short setae on outer margin; dactylus bifid.

Pereopod 4 (Fig.3N): basis 2.5 times as long as wide; ischium 0.7 times as long as basis, with 4-5 setae on inner margin and a seta at outer distal angle; merus 0.6 times as long as ischium, with 5-6 setae on inner margin and a seta at outer distal angle; carpus 1.4 times longer than merus, with 4 long setae on inner margin, 4 short setae on outer margin; propodus as long as carpus, with 3 setae on inner margin and 5-6 short setae on outer margin; dactylus bifid.

Pereopod 5 (Fig.3 O): basis 3.0 times as long as wide; ischium 2/3 as long as basis, with 4 setae on inner margin and a seta on outer margin; merus 0.6 times as long as ischium with 2 groups of 2 setae on inner margin; carpus, a little shorter than ischium, with 6 steae on inner margin; propodus as long as carpus, with 5 setae on inner margin and many short setae on outer margin; dactylus bifid.

Pereopod 6 (Fig.3P): basis 4 times as long as wide; ischium a little shorter than basis, with 5 setae on inner margin and a seta at outer distal angle; merus 0.7 times as long as ischium, with 7 setae on inner margin, and a seta at outer distal angle; carpus, a long bifid setae one 3 shorter setae on inner margin; propodus a little shorter than carpus, with 3 setae on inner margin and many hair on outer margin; dactylus bifid.

Pereopod 7 (Fig.3Q): basis rectangular, 3.1 times as long as wide; ischium rectangular; merus rather short, with 2-4 setae on inner margin and a seta at outer distal angle; carpus a little longer than merus, with 3-4 setae on inner margin; propodus a little shorter than carpus, with 2-4 setae on inner margin and much long setae on outer margin; dactylus bifid.

Penes (Fig. 3R) stout, and rounded.

Pleopod 1 (Fig.3R): endopod short; exopod short and wide.

Pleopod 2 Fig.3S): endopod long, terminal part tapering toward the tip.

Uropod (Fig. 3T): basis almost square, as long as wide; endopod slender, 5 times as long and wide, exopod 1.7 times longer than exopod.

Female differs from male in sexual features.

Etymology. The species name is dedicated to Dr.Yoshiyasu Katakura who had collected the type and other specimens in the islands.

Remarks: The present new species is most closely allied to *Styloniscus japonicus* recorded from the Imperial Palace, Tokyo (Nunomura,2000), but the former is separated from the latter in the following features:(1)shape of male first pleopod, (2)shape of penes,(3)more setose maxilliped,(4)longer antennae,(5) numerous aesthetascs on antennule and (6) shorter pleotelson.

Family Halophilosciidae

Littorophiloscia sp.

(Fig.4)

Material examined: 1♀(2.6 mm in body length), Ookagou, Mar. 21, 1988, coll. Yoshiyasu Katakura.

Description: Body 2.2 times as long as wide, excluding uropods and antennae. Color white in alcohol. Surface almost smooth. Cephalon round. Eyes relatively small and each eye, with 15-16 ommatidia. Pleotelson with obtuse posterior medial point.

Antennule (Fig.4C): terminal segment with 6 aesthetascs at the tip. Antenna (Fig.4 D) composed of 5 peduncular and flagellar segments; mutual length of 3 flagellar segments 1:1:2. Terminal segment with a tuft of setae at the tip.

Right mandible (Fig.4E): pars incisiva 4-toothed; lacinia mobilis weakly 3-toothed; plumose setae; processus molaris represented by a plumose seta. Left mandible (Fig.4F) pars incisiva 4-toothed; lacinia mobilis chitinized and 3-toothed; processus molaris represented by a single plumose seta. Maxillula (Fig.4G): outer lobe with 10 teeth at the tip, four of which bifid and other 6 teeth simple. Maxilla (Fig.4H) broad and weakly bilobed in two lappets. Maxilliped (Fig.4I) endite rectangular, with a stout tooth and much hair on distal area; palp with 2 groups of many setae.

Pereopod 1 (Fig.4J): basis rectangular, 3.2 times as long as wide; ischium 45% as long as basis, with 3 setae on inner margin; merus a little shorter than ischium, with 3 setae on inner margin and a seta on outer margin, carpus 1.3 times longer than merus, with 6 setae on basal half and several short setae on distal half of inner margin; propodus 3/4 as long as carpus, with 2 setae on inner margin and 6-8 setae on outer margin; dactylus bifid.

Pereopod 2. (Fig.4K): basis 3.5 times as long as wide, with 5 setae on inner margin ; ischium half length of basis, with 4 setae on inner margin; merus a little shorter than ischium, with 5-6 setae on inner margin and 2 setae on outer distal area; carpus a little longer than carpus, with 5 setae including a long one on inner margin and 2 setae on outer distal area; propodus a little longer than carpus, with 5-6 setae on inner margin and 5-7 short setae on outer margin; dactylus bifid.

Pereopod 3 (Fig.4L): basis 3.0 times as long as wide; ischium half length of basis, with 2 setae on inner margin ; merus as long as ischium, with 3-4 setae on inner margin and a seta at outer distal angle; carpus 1.3 times longer than merus, with 4-5 setae on inner margin and a seta at outer distal area; propodus as long as carpus, with 4 setae on inner margin and 5-6 shore setae on outer margin; dactylus bifid.

Pereopod 4 (Fig.4M): basis 3.5 times as long as wide, with 4 setae on inner margin; ischium half length of basis, with 6-7 setae on inner margin and a seta at outer distal angle; merus a little shorter than ischium, with 4 setae on inner margin and a seta at outer distal margin; carpus 1.3 times longer than merus, with 6 setae on inner margin; propodus as long as carpus, with 3 setae on inner margin and 8-9 setae on outer margin; dactylus bifid.

Pereopod 5 (Fig.4N): basis 3.1 times as long as wide; ischium 0.6 times as long as wide, with 5-6 short setae on inner margin; merus 0.6 times as long as ischium, with 3 setae on inner margin and a seta at outer distal margin ; carpus 1.7 times longer than merus and a little shorter than ischium, with 4 setae including long seta on inner margin, a group of 3-4 setae at outer distal area and 4-5 setae on outer margin; propodus as long as carpus, with 4 setae on inner margin 7-8 short setae outer margin; dactylus bifid.

Pereopod 6 (Fig.4O): basis 3.1 times as long as wide, with 3-4 setae on both margins and a seta at inner distal angle; ischium 0.6 times as long as basis, with 3 setae on inner margin and a seta at outer distal angle; merus 2/3 as long as ischium, 5 relatively long setae on inner margin and 2 short setae on outer margin; carpus 1.9 times longer than merus, with 2 long and 6-7 short setae on inner margin; propodus a little longer than carpus, with 5 setae on inner margin and 5 short setae on outer margin and 4-5 setal on outer margin; dactylus bifid.

Pereopod 7 (Fig.4P): basis 3.1 times as long as wide, with 5 setae on inner margin and 2 setae on outer margin; ischium 55% as long as basis, with 2 short setae on inner margin; merus 3/4 as long as ischium, with 8 setae on inner margin and 3 setae on outer margin; carpus 1.4 times longer than merus, with 5 setae and a long seta on inner margin and 5-6 short setae on outer margin; propodus as long as carpus, with 5 long setae on inner margin and 8-10 short setae on outer margin; dactylus bifid.

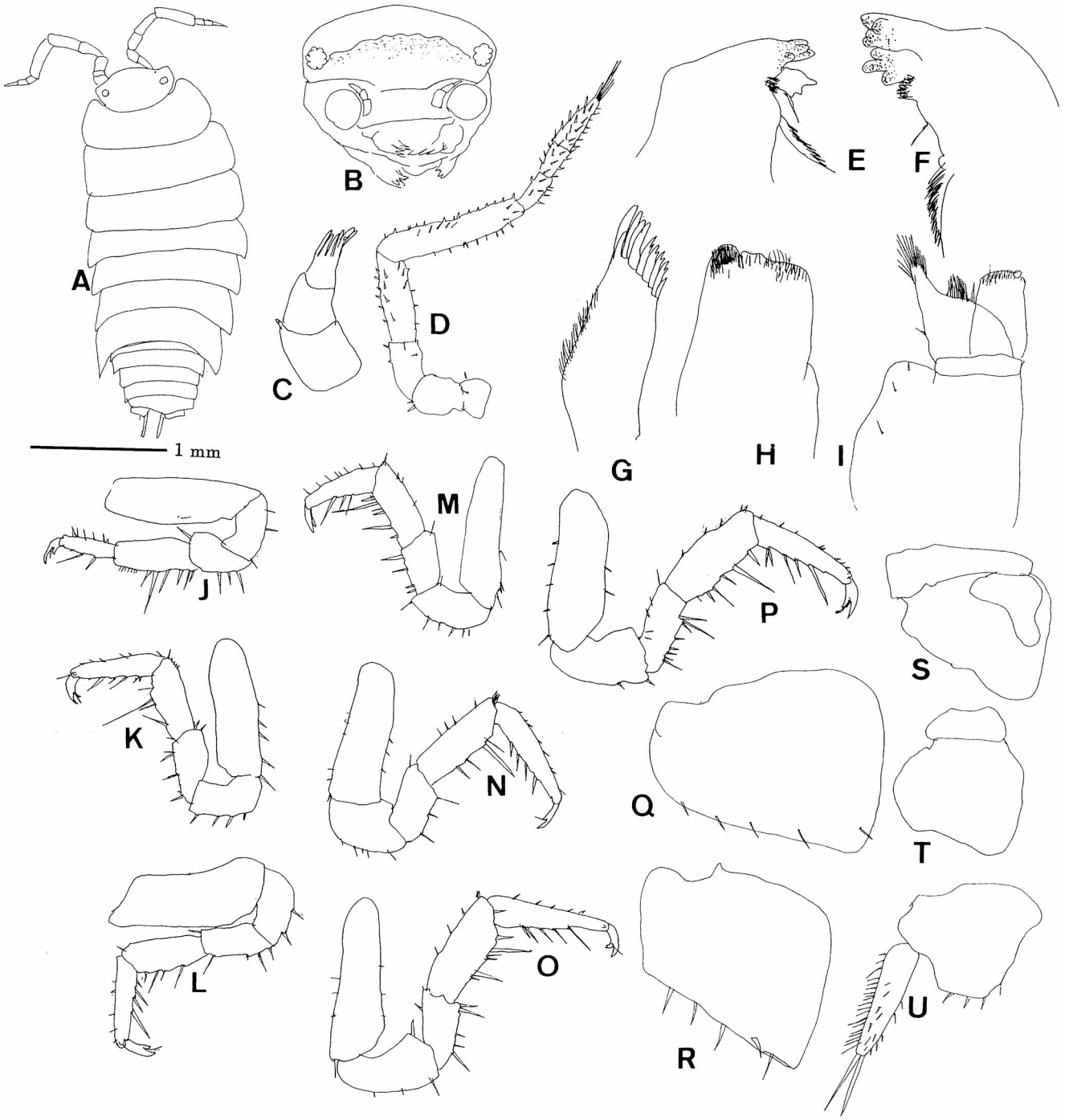

Fig.4 ***Littorophiloscia*** **sp.**
A. Dorsal view. B: Frontal view of cephalon. C: Antennule. D:Antenna. E : Right mandible. F: Left mandible. G:Outer lobe of maxillula. G: Maxilla. I: Maxilliped. J-P: Pereopods 1-7. Q-T: Pleopods 2-5. U: Uropod. (All: A female).

Pleopod 2 (Fig.4Q): exopod long, terminal part swollen, with 5 spines on outer margin.

Pleopod 3 (Fig.4R); exopod rhomboid, with 5 setae on outer margin.

Pleopod 4 (Fig.4S): exopod rounded triangular.

Pleopod 5 (Fig.4T): exopod rounded rectangular.

Uropod (Fig.4U): basis pentagonal; endopod as long as basis in length, with 2 setae at the tip; unfortunalely exopod broken.

Remarks: The present specimen is allied to *Littorophiloscia nipponensis*, but the former is separated from the latter in the following features: (1) shorter body, (2) numerous aesthetascs on antennule, (3) bigger eyes with more ommatidia. Only an incomplete female specimen is available to me, therefore, I refrained to establish to a new species.

Family Philosciidae

Burmoniscus hachijoensis n.sp.

(Japanese name; Hachijo-mori-warajimushi, new)

(Fig. 5)

Material examined 1♂(holotype, 4.1 mm in body length and 4♀♀(1♀allotype, 6.5 mm in body length and 3♀♀ paratypes, 5.5-6.0 mm in body length), Yaene, Oct.7, 2003, coll. Yasutoshi Katakura; 1♀, Sueyoshi, Oct. 6, 2003, coll. Yasutoshi Katakura; 3♂♂24♀♀, Sueyoshi, Oct. 6, 2003. coll. Yasutoshi Katakura; 2♂♂9♀♀, Otago, Mar 21, 1988. coll. Yasutoshi Katakura; 2♀♀, Nakanogo, Oct 24, 2001. coll, Yasutoshi Katakura; 1young♀, Nakanogou, Oct. 24, 2001, coll. Yasutoshi Katakura; 1♀, Kaminto, Oct. 7, 2003, coll. Yasutoshi Katakura;, 5♀♀, Sueyoshi, Oct.6, 2003, coll.Yasutoshi Katakura; 15♀♀(including 2 ovigerous ♀♀), Kashitate, May 27, Kashitate, coll. Noboru Nunomura; 2♂♂17♀♀, Kashitate, May 22, Kashitate, coll. Noboru Nunomura; 15♀♀, Oosato, Jan. 2001, coll. Yasutoshi Katakura; 14♀♀(including 2 ovigerous♀♀), Oosato, Oct. 25, 2001, coll. Yasutoshi Katakura; 13♂♂27 (including 4 ovigerous ♀♀), Hachijofuji, ichi-no-torii, July 25, 1979, coll. Masami Hasegawa and Hideaki Watanabe; 2♂♂21♀♀ 2gravid♀♀, Nakanogou, Oct 24, 2001, coll. Yasutoshi Katakura; 3♀♀, Yokomaura, May 24, 1998, coll. Noboru Nunomura. Type series will be deposited as follows: Holotype (TOYA Cr-13266), allotype (TOYA Cr-13267) and a paratype (TOYA Cr-13268) at Toyama Science Museum, 2 paratypes (NSM Cr-16859) at National Science Museum, Tokyo.

Description: Body 2.6 times as long as wide, excluding uropods and antennae. Color blackish brown. Surface almost smooth. Cephalon (Fig.5P) round in dorsal view but rather high in anterior view. Eyes large and reniform and each eye with about 12 ommatidia. Noduli lateralis on pereonal somite 2 remote from lateral margin (Fig.5T); those of other pereonites rather near from the lateral margin; that of pereonite 4 invisible. Pleotelson with truncated distal margin.

Antennule (Fig. 5C) segment 1 almost square; segment 2 rather short; terminal segment with 5-6 aesthetascs at the tip. Antenna (Fig.5D) composed of 5 peduncular and 3 flagellar segments; mutual length of 3 flagellar segments is 6:5:8.

Right mandible (Fig.5E): pars incisiva 4-toothed; lacinia mobilis weakly 3- headed; a plumose seta behind lacinia mobilis; processus molaris represented by a single plumose seta. Left mandible (Fig.5F): pars incisiva 3- toothed; lacinia mobilis chitinized and 4-toothed; a plumose seta behind lacinia mobilis; processus molaris represented by a single plumose seta. Maxillula (Fig.5G): outer lobe with 10 teeth including 3 bifid ones at the tip; inner lobe with 2 plumose seta at the tip. Maxilla (Fig.5H) broad and weakly bilobed in two lappets. Maxilliped (Fig.5I): endite rectangular, with teeth on distal margin; palp relatively short, with 2 groups of setae.

Pereopod 1 (Fig.5J): basis rectangular, 2.5 times as long as wide, with a seta on inner margin; ischium half length of basis, with 4-5 setae on inner margin and a seta outer distal angle; merus almost as long as ischium, with 7 long setae on inner margin and 2-3 short setae on outer distal area; carpus as long as merus, with 3 long trifid setae and 4-5 simple setae on inner margin and a shallow concavity on distal area of inner margin and and 2 setae on outer margin; propodus a little longer than carpus, with many setae on basal half and 4-5 setae of distal half of inner margin and 4 setae on outer margin; dactylus bifid.

Pereopod 2 (Fig. 5K): basis 2.7 times as long as wide; ischium half length of basis, with 3-4 setae on inner margin; merus a little shorter than ischium, with 5-6 setae on inner margin and a seta at outer distal angle; carpus as long as merus, with 6-7 setae on inner margin and a seta at outer distal angle; propodus 1.2 times longer than carpus, with 3 setae on inner margin and 4-5 setae on outer margin; dactylus bifid.

Pereopod 3 (Fig. 5L): basis 2.8 times as long as wide, with 5-6 setae on inner margin; ischium 45% as long as basis, with 4 setae on inner margin and 2-3 setae on outer margin; merus as long as ischium, with 7 setae on inner margin and 2-3 setae on outer margin; carpus 1.2 times longer than merus, with 4 longer setae and many small setae on inner margin and 2-3 setae on outer distal area; propodus 1.1 times longer than carpus, with 7-8 setae on inner margin and 4-5 setae on outer margin; dactylus bifid.

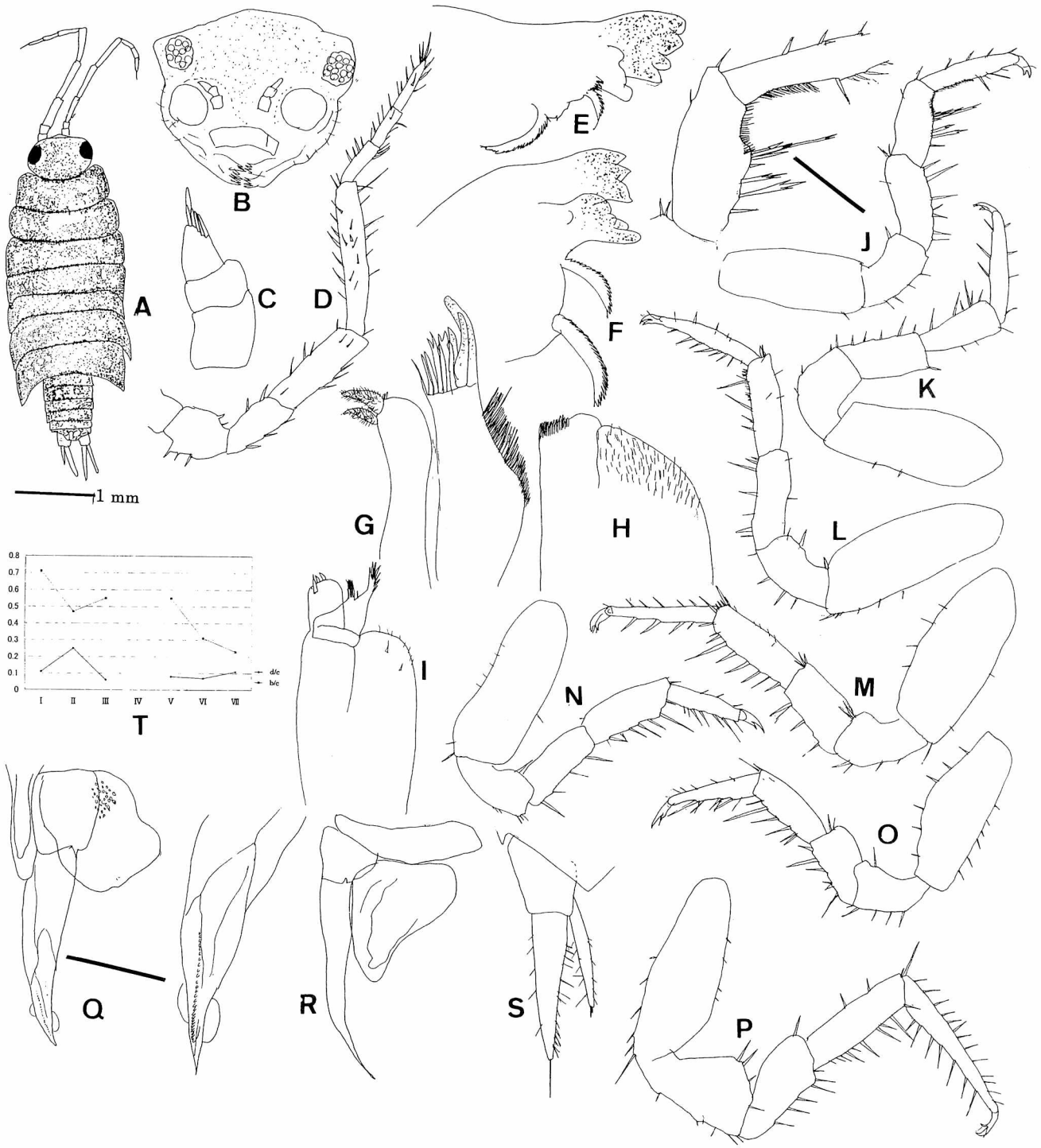

Fig.5 ***Burmoniscus hachijoensis*** **n.sp.**
A. Dorsal view. B: Frontal view of cephalon. C: Antennule. D:Antenna. E: Right antenna. F: Left antenna. G: Maxillula. H: Maxilla. I: Maxilliped. J-P: Pereopods 1-7. Q: Penes and pleopod 1. R: Pleopod 2. T: Positoin of noduli lateralis on pereonal somites (All: Holotype male).

Pereopod 4 (Fig.5M): basis 2.5 times as long as wide, with a seta at inner distal angle and 3-4 setae on both margins; ischium half length of basis, with 5-6 setae on inner margin and 2 setae at outer distal angle ; merus a little shorter than ischium, with 4-6 setae on inner margin and 3 setae at outer distal angle; carpus 1.3 times longer than merus, with 8-10 setae on inner margin and 6-7 setae on outer distal area; propodus as long as carpus, with 4-5 setae on inner margin and 5-6 setae on outer margin; dactylus bifid.

Pereopod 5 (Fig.5 N): basis 2.9 times as long as wide; ischium half length of basis, with 5-6 short setae on inner

margin and a seta on outer margin; merus as long as ischium, with 4 setae on inner margin; carpus 1.2 times longer than basis, with 7-8 setae on inner margin; propodus a little shorter than carpus, with 7-8 setae on inner margin and 3 setae on outer margin; dactylus bifid.

Pereopod 6 (Fig. 5O): basis 2.8 times as long as wide, with 6 setae on both margins; ischium half length of basis, with 5-6 setae on inner margin and a seta on outer margin; merus as long as basis, with 6 setae on inner margin and 1-2 setae on outer margin; carpus 1.2 times longer than merus, with 6 setae on inner margin and 2 setae on outer distal area; propodus as long as carpus, with 7-8 setae on inner margin and 5-6 setae on outer margin; dactylus bifid.

Pereopod 7 (Fig. 5P): basis 2.8 times as long as wide, with 4-6 setae on both margins; ischium 0.6 times as long as wide, 5-6 setae on inner margin and 3 setae on outer margin; merus a little shorter than ischium, with 6-7 setae on inner margin and a seta at outer distal area; carpus 1.3 times longer than merus, with 10 setae on inner margin and a seta at outer distal area and 2-3 setae on outer margin; propodus 1.4 times longer than carpus, with 7 setae on inner margin and 13-14 setae on outer margin; dactylus bifid.

Penes (Fig.5Q): rectangular, 5 times as long as wide.

Pleopod 1(Fig.5Q): endopod stout, with rounded tip, and lapped-shaped structures on both margins and bears a series of more than 30 denticles. Pleopod 2 (Fig. 5R): endopod long, terminal part tapering toward the tip; exopod rounded triangular.

Uropod (Fig.5S): basis 1.6 times as long as wide; endopod slender, 9 times as long as wide1.5 times as long as wide, with a tuft of setae at the tip; exopod 1.7 times longer than endopod, with a tuft of setae at the tip.

Females differs only in sexual charaeters.

Remarks: The present new species is most closely allied to *Burmoniscus okinawaensis* (Nunomura, 1986), but the former is separated from the latter in the following features:(1) square exopod of male first pleopod,(2) less numerous bifid setae on maxilliped,(3) numerous aesthetascs of antennule, and (4) shorter setae of antenna. And the present new species is separated from *Burmoniscus* sp. (Nunomura, 1986), but the former is separated from the latter in the following features: (1) rectangular exopod of male first pleopod, (2) presence of long bifid setae on carpus of pereopod 1, (3) shorter antennae, (4) numerous aesthetes on antennule and (5) shape of teeth on outer lobe of maxillula.

Family Agnaridae

Lucasioides hachijoensis (Nunomura, 1987)

(Fig. 6)

Nagurus hachijoensis Nunomura. 1987. pp. 19-22. fig. 108.

Material examined: 7♂15♀♀, Nakanogou, Oct. 24, 2001, coll. Yoshiyasu Katakura; 5♂♂3♀♀, Ookagou, Mar. 21, 1988.coll. Yoshiyasu Katakura.

Redescription of male from Nakanogou: Body 1.8 times as long as wide excluding uropods and both antennae. Body length, up to 12mm. Color blackish brown. Surface almost smooth. Cephalon (Fig.6A) round in dorsal view, medial process of anterior margin (Fig.7A) relatively short. Eyes mediocre in size and each eye with about 16 ommatidia.

Antennule (Fig. 6B) segment 1 stout; segment 2 short; segment 3 with 5-6 aesthetascs at the tip. Antenna (Fig. 6C) composed of 5 peduncular and 2 flagellar segments; terminal flagellar segment 1.4 times longer than the basal one. Right mandible (Fig.6D): pars incisiva 3-toothed: lacinia mobilis not chitinized and 3-headed; 4 plumose setae behind lacinia mobilis; processus molaris represented by a tuft of setae. Left mandible: pars incisiva 3-toothed; lacinia mobilis chitinized and 3-toothed; 3 plumose setae behind the lacinia mobilis; processus molaris as right one. Maxillula. (Fig.6E): outer lobe with 10 simple teeth at the tip; inner lobe with 2 plumose setae at the tip. Maxilla (Fig. 6F) broad and weakly bilobed in two lappets. Maxilliped (Fig.6G): endite wide, with 3 spurs and a seta on distal margin and a strong tooth near the distal margin; palp relatively wide.

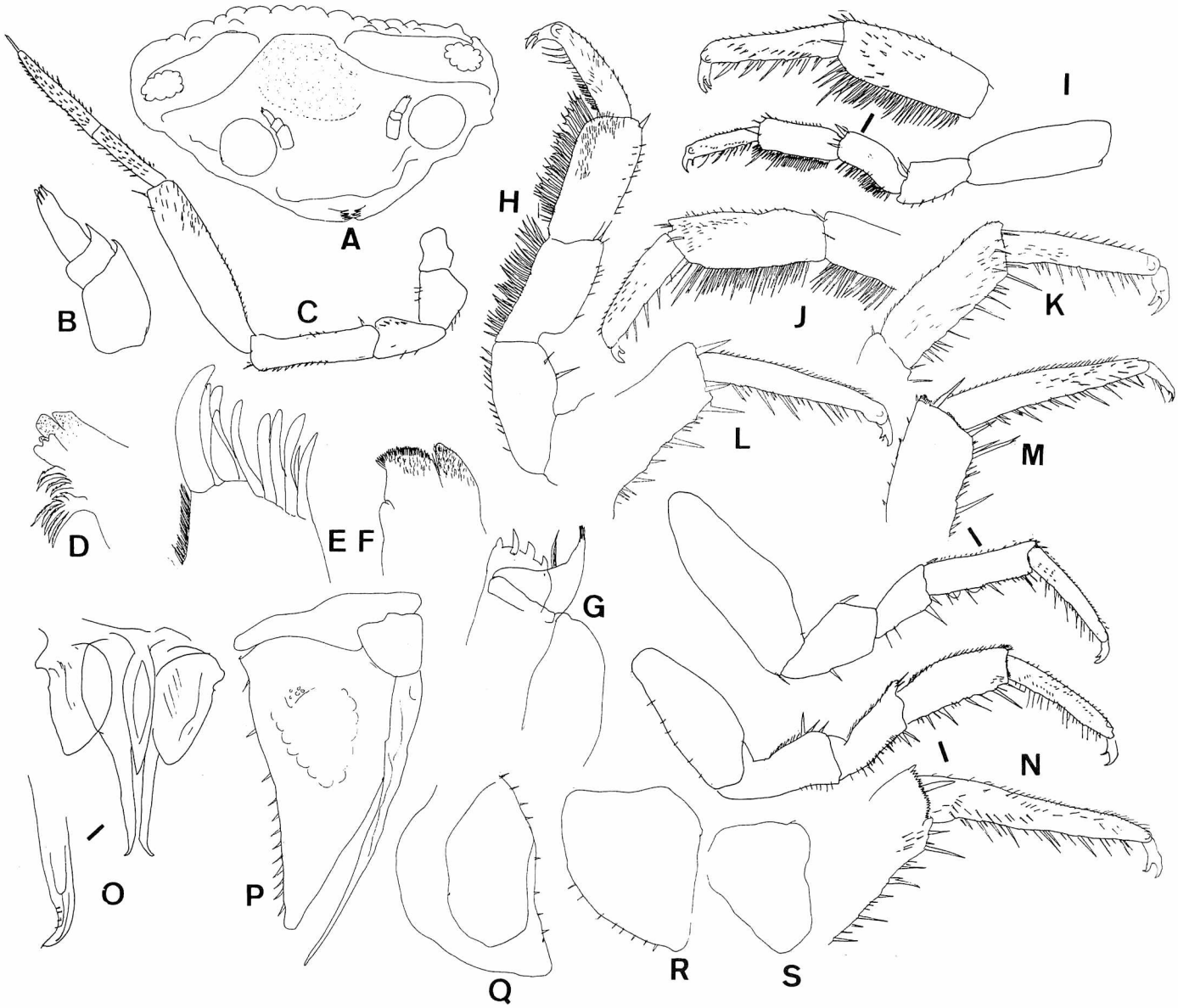

Fig.6 ***Lucasioides hachijoensis*** **(Nunomura, 1987) .**
A: Frontal view of cephalon. B: Antennule. C: Antenna. D: Right antenna. F: Maxillula. G: Maxilla. H. Maxilliped. I: Pereopod 1. J: Pereopod 2. K: Pereopod 4. L: Pereopod 5: M: Pereopod 6. N: Pereopod 7. O: Penes and pleopod. P:Pleopod 2. Q-S: Pleopods 3-5. (All: Male specimens).

Pereopod 1 (Fig. 6H): basis rectangular, 3.0 times as long as wide, more than 10 short setae on inner margin and a seta at inner distal angle; ischium with a seta on outer margin and about 12 setae on inner margin; merus a little shorter than ischium, with many setae on inner margin and 2 setae on outer margin; carpus 1.2 times longer than merus, with many bifid setae on inner margin and a seta at outer distal angle; propodus 85% as long as carpus, with more than 20 relatively short setae on basal half and 3 setae on distal half of inner margin; dactylus bifid.

Pereopod 2 (Fig. 6I): basis 3.0 times as long as wide, with several setae on outer margin; ischium half length of basis, with 6 setae on inner margin and a seta at outer distal angle; merus as long as ischium, with many long setae on inner margin and several setae on distal margin; carpus a little longer than merus, with many setae on inner margin and 4-5 setae on dorsal and outer margins; propodus a little shorter than carpus, with 9-10 setae on inner margin; dactylus bifid.

Pereopod 3 (Fig.6J): basis 3 times as long as wide, with a seta at inner distal angle ; ischium half length of basis, 3-4 setae on inner margin and a seta on a outer margin; merus a little shorter than ischium, with more than 32 setae on inner margin and a seta at outer distal angle; carpus a little longer than merus, with about 50 setae on inner margin, a seta on distal margin and 2 setae on outer distal angle; propodus 3/4 as long as carpus, with 4 stronger and many weaker setae on inner margin and many setae on outer margin; dactylus bifid.

Pereopod 4 (Fig.6K): basis 3.2 times as long as wide, with a seta on inner distal angle; ischium 0.6 times as long as basis, with many short setae on inner margin and a seta at outer distal angle; merus a little shorter than ischium, with many setae on inner margin; carpus a little longer than merus, with 11-12 setae on inner margin and several setae on lateral margin; propodus as long as carpus, with 17-20 setae on inner margin; dactylus bifid.

Pereopod 5 (Fig.6L): basis 3.8 times as long as wide, with many short setae on inner margin and a strong seta at inner distal angle; ischium half length of basis, with a seta on outer margin; merus 0.8 times as long as ischium, with 3-5 longer and several shorter setae on inner margin and a seta at outer distal angle; carpus 1.2 times longer than merus, with more than 20 setae on inner margin and 2 setae on distal margin; propodus as long as carpus, with 18-20 setae on inner margin and many short setae on outer margin; dactylus bifid.

Pereopod 6 (Fig.6M): basis 3 times as long as wide, with a seta at inner distal angle; ischium 0.6 times as long as basis, with a seta on inner margin and a seta on sternal margin ; merus 2/3 as long as ischium with 4-5 setae on inner margin; carpus 1.7 times longer than merus, with 4 relatively long setae and more than 10 setae on inner margin; propodus as long as carpus, with more than 20 setae on inner margin and many short setae on outer margin; dactylus bifid.

Pereopod 7 (Fig.6N) : basis 2.6 times as long as wide; ischium 0.7 times as long as basis, with 3 setae on outer margin; merus 3/4 as long as ischium, with many setae on inner margin and 2-3 setae on outer distal area; carpus 1.3 times longer than merus, with 5 longer and 13-15 shorter setae on inner margin and many short setae on outer margin; dactylus bifid.

Penes (Fig. 6O) fusiform, 4 times as long as wide.

Pleopod 1 (Fig. 6O): endopod long, terminal part tapering towards the tip and bending outwards, with a series of more than 5 spinules.

Pleopod 2 (Fig. 6P) endopod long and tapering toward the tip; exopod triangular.

Pleopod 3 (Fig.6Q): exopod with 8 setae on the margin.

Pleopod 4 (Fig.6R) and pleopod 5 (Fig.6S) triangular.

Uropod long and occupies 40% of the body length; basis 42% of the endopod in length; exopod 55%of endopod in length.

Remarks: The specimens collected from Nakonogou well agree the original description but some differences are found; (1) presence of a few of spinules of male first pleopod and (2) less numerous aesthetascs of antennule. Some other features was not described in the original description (Nunomura, 1987), such as anterior view of cephalon and all the pereopods therefore, they are described in this paper.

Family Trachelipodidae

Nagurus (?) sp.

(Fig.7)

Material examined:1young ♀(2.0 mm in body length), Oct. 25, 2001, coll Yasutoshi Katakura.

Redescription: Body 2.4 times as long as wide excluding uropods and antennae. Color blackish. Cephalon round. Eyes mediocre and each eye with about 7 ommatidia.

Antennule (Fig.7C) 3-segmented; terminal segment with 3 aesthetascs at the tip. Antenna (Fig.7D) composed of 5 peduncular and 2 flagellar segments; mutual length of 2 flagellar segments is 1 : 2.

Right mandible (Fig. 7E): pars incisiva 3-toothed; lacinia mobilis weakly 2-toothed; 3 plumose setae; processus molaris represented by a simple seta. Maxillula (Fig.7F): outer lobe with 10 teeth at the tip; inner lobe with 2 plumose setae at the tip. Maxilla (Fig.7G) relatively slender. Maxilliped (Fig. 7H): endite rounded with 2 setae; palp relatively slender, with 3 groups of setae on the margin.

Pereopod 1 (Fig.7I): basis rectangular; ischium half length of basis, with 2 setae on inner margin; merus a little shorter than ischium, with 3 setae on inner margin; carpus as long as merus, with a longer and 2 shorter setae on inner margin; propodus 1.4 times longer than carpus. with 4 setae on inner margin; dactylus bifid.

Pereopod 2 (Fig.7J): basis 3 times as long as wide; ischium 0.7 times as long as basis, with 4 setae on inner margin;

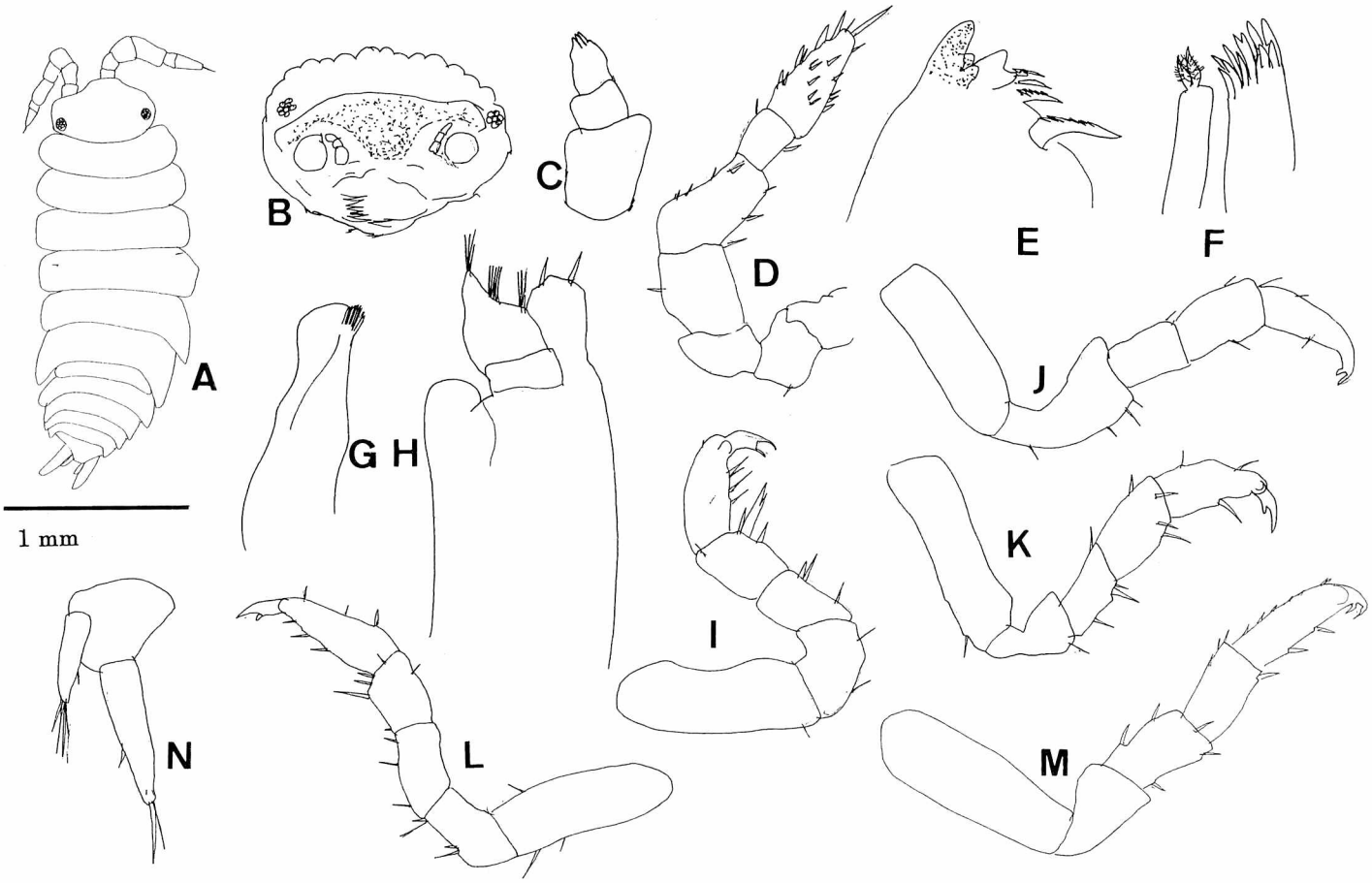

Fig.7 ***Nagurus*** **(?) sp.**
A:Dorsal view. B:Frontal view of cephalon. C:Antennule. D:Antenna. E:Right antenna. F:Maxillula. G:Maxilla. H:Maxilliped. I: Pereopod 1. J:Pereopod 2. K:Pereopod 3. L:Pereopod 4. M:Pereopod 6. N:Uropod (All: A young female).

merus 2/3 as long as ischium, with a seta at outer distal angle ; carpus 1.4 times longer than merus, with a seta on both margins; propodus as long as carpus, with a seta on both margins; dactylus bifid.

Pereopod 3 unfortunately lacking.

Pereopod 4 (Fig.7K): basis 4 times as long as wide, with a seta at the inner distal angle ; ischium half length of basis, with a seta on inner margin; merus 0.8 times as long as ischium, with 3 setae on inner margin and a seta on outer margin; carpus 1.4 times longer than merus, with a seta on inner margin and a seta on outer margin; propodus as long as carpus with a seta on inner margin and 2 setae on outer margin; dactylus bifid.

Pereopod 5 (Fig. 7L) : basis 3 times as long as wide, with 2 setae on inner margin; ischium 55%as long as basis, with 2 groups of 2 setae on inner margin; merus 0.7 times as long as ischium, with 3 setae on inner margin and a seta on outer margin; carpus a little shorter than merus, with 4 setae on distal margin and a seta on outer margin; propodus 1.5 times longer than carpus, with 3 setae on both margins; dactylus bifid.

Pereopod 6 (Fig.7M): basis 2.9 times as long as wide ; ischium half the length of basis; merus as long as ischium, with 2 setae on both margins; carpus as long as merus, with a seta at inner distal angle and a few of setae on outer distal area; propodus 1.4 times longer than carpus, with 2 setae on inner margin and 6-7 small setae on outer margin; dactylus bifid.

Pereopod 7 lacking.

Uropods (Fig. 7N): basis almost square; endopod as long as basis; exopod 1.6 times longer than endopod.

Remarks: Only a young specimen has been collected from Hachijo. This specimen is considered to be a manca stage, because it bears only six pairs pereopods.

Family Armadillidae

Spherillo hachijoensis n.sp.

(Japanese name: Hachijo - koshibiro-dangomushi, new)

(Fig.8)

Material examined: 4♂♂ (1♂holotype, 5.0 mm in body length and 3♂♂ paratype, 4.5-5.1mm in body length) and 2♀♀(1♀ allotype, 7.3mm in body length and 1♀, 6.0 mm in body length), Oosato, Oct 25, 2001, coll. Yasutoshi Katakura; 11♀♀, Oosato, Oct. 25, 2001, coll. Yasutoshi Katakura; 6♀♀, Yaene, Oct. 7, 2003, cell.Yasutoshi Katakura; 3♀♀, Sueyoshi, Oct. 6,2003, coll.Yasutoshi Katakura; 1♀, Ookagou, Mar. 21, 1988. coll Yasutoshi Katakura; 1♂11♀♀1y, Oosato-Sueyoshi, Nov.16, 2001.coll. Yasutoshi Katakura; 1♀, Hachijo Tropical Plant Park, Ookagou, Mar. 23, 2005 coll. Yasutoshi Katakura; 1♂1♀, Nakanogou, Oct. 24, 2001, coll. Yasutoshi Katakura; 1young ♀, Oosato, Jan. 2001, coll. Yasutoshi Katakura;7♀♀4y, Borawazawa, May 26,1998, coll. Noboru Nunomura; 7♀♀, Kashitate, May 27,

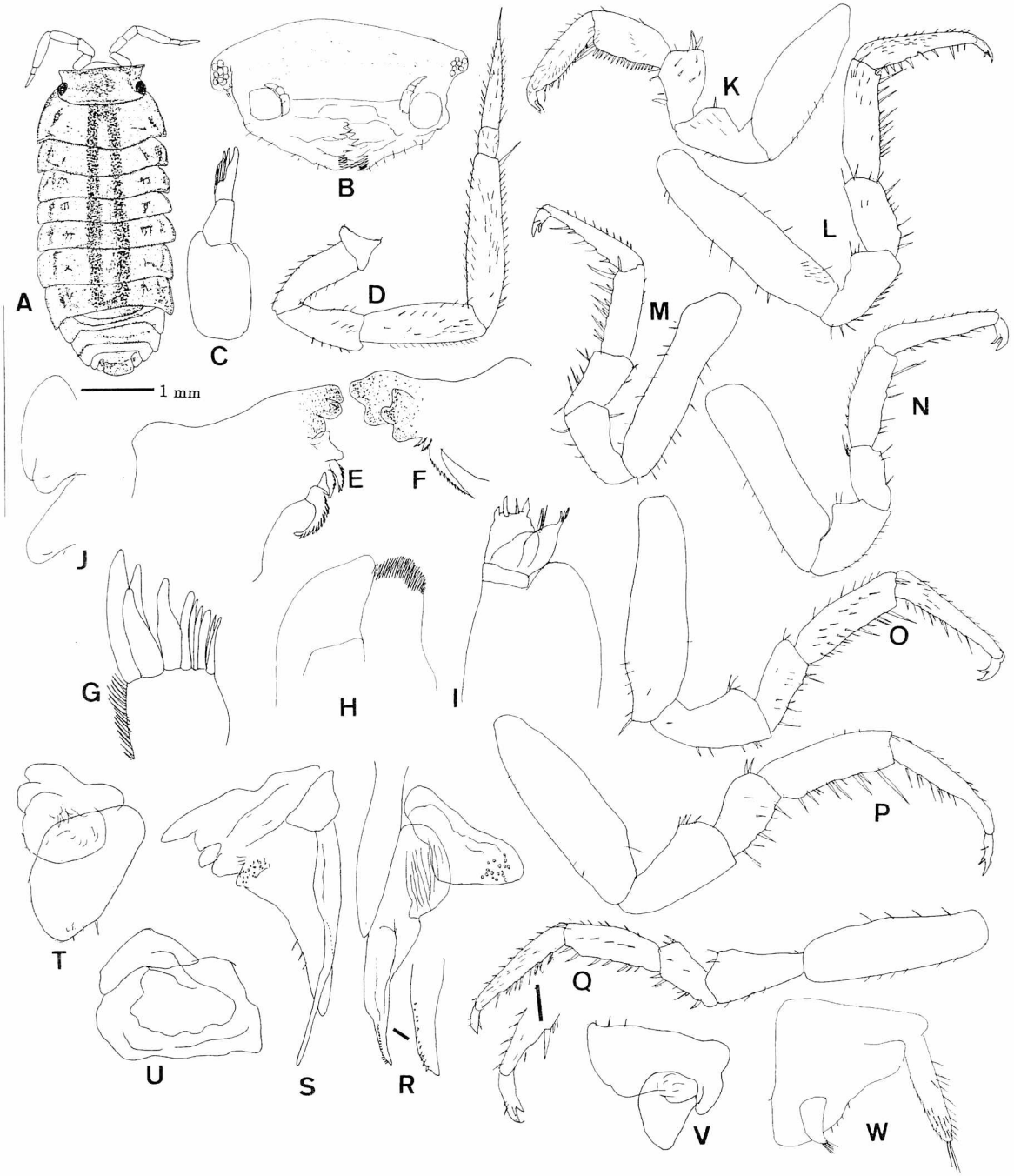

Fig.8 ***Spherillo hachijoensis*** **n.sp.**
A. Dorsal view. B: Frontal view of cephalon. C: Antennule. D:Antenna. E: Right antenna. F: Left antenna. G: Outer lobe of the maxilliped. H: Maxilla. I: Maxilliped. J: Ventral view of pereonal somites 1-2. K:-Q: Pereopods 1-7. R: Penes and pleopod 1. S.Pleopod 2. T-V: Pleopods 3-5. W: Uropod (All: Holotype male.).

Kashitate, coll. Noboru Nunomura, Type series will be deposited as follows: Holotype (TOYA Cr-13256), allotype (TOYA Cr-12257) and 5 paratypes (TOYA Cr 13258～13262) at Toyama Science Museum, 2 paratypes (NSMT Cr-16860) at National Science Museum, Tokyo and 4 paratypes (OMNH Ar - 7439～7442) at Osaka Museum of Natural History.

Description: Body 2.2 times as long as wide, excluding uropods and antennae. Color blackish. Surface almost smooth. Cephalon round in dorsal view, but rather low in anterior view; no medial lobe. Eyes large and reniform and each eye with 8-10 ommatidia. Schisma on pereopod 1 small and tooth-like structure on pereopod 2 relatively shallow (Fig. 8J). Pleotelson hour-grass-shaped.

Antennule (Fig. 8C) segment 1 rectangular; segment 2 half length of segment 1: segment 3 slender, with 5-6 aesthetascs at the tip. Antenna (Fig. 8D) composed of 5 peduncular and 2 flagellar segments; terminal flagellar segment 3 times longer than the basal one. Right mandible (Fig.8E): pars incisiva 3-toothed lacinia mobilis; 2 plumose setae behind lacinia mobilis; processus molaris represented by a single plumose seta. Left mandible (Fig.8F): pars incisiva 3-toothed; lacinia mobilis chitinzed and 3-toothed; 2 plumose setae behind lacinia mobilis; processus molaris represented by a single plumose seta. Maxillula (Fig. 8G): outer lobe with 10 simple teeth at the tip; inner lobe with plumose setae at the tip. Maxilla (Fig.8H) broad and weakly bilobed in two lappets. Maxilliped (Fig.8 I): endite with 2 spurs and 2 setae on distal margin; palp rather slender.

Pereopod 1 (Fig. 8K): basis 3.2 times as long as wide, with 5-6 short setae on inner margin; ischium 2/3 as long as basis, with a few of short setae on inner margin and a seta on outer margin; merus 3/4 as long as ischium, with 4-5 setae on inner margin and 3 setae on outer lateral angle; carpus 1.2 times longer than merus, with more than 20 setae on inner margin; propodus 1.2 times longer than merus, with more than 20 setae on inner margin and 6-7 setae on outer margin; dactylus bifid.

Pereopod 2 (Fig.8L): basis 3.8 time as long as wide, with 4-5 setae on both margins; ischium less than half length of basis, with 11-12 setae on inner margin and 3 setae on outer distal angle; merus 3/4 as long as ischium, with 7 setae on inner margin and 4-5 setae on distal margin; carpus 1.5 times longer than merus, with 11-12 setae on inner margin,; propodus as long as carpus, with 10 setae on inner margin and 12-13 short setae on outer margin; dactylus bifid.

Pereopod 3 (Fig.8M): basis 2.9 times as long as long as wide, with 7-9 setae on both margins; ischium 0.6 times as long as basis, with more than 4 setae on inner margin and a seta on outer margin; merus 3/4 as long as ischium, with 7-8 setae on inner margin and 2-3 setae on outer margin; carpus 1.2 times longer than merus, with more than 12 setae on inner margin; propodus 1.2 times longer than carpus, with more than 5 setae on inner margin and 10 setae on outer margin; dactylus bifid.

Pereopod 4 (Fig.8N): basis 3.7 times as long as wide, with 5 short setae on inner margin; ischium 0.55 times as long as basis, with 7 setae on inner margin and 2 setae on outer margin; merus 2/3 as long as ischium, with 3 setae on inner margin and 2 setae on outer distal angle; carpus 1.7 times longer than merus, with 2 bifid longer setae and 4-6 shorter ones on inner margin and 12 short setae on outer margin; propodus as long as carpus, with 8-10 short setae on inner margin and 10-12 shout setae on outer margin; dactylus bifid.

Pereopod 5 (Fig. 8O): basis 3.5 times long as wide, with a seta at inner distal area and several short setae on inner margin; ischium 0.6 times as long as basis, with 5 short setae on inner margin and 2-3 setae on outer distal area; merus 55% as long as ischium, with 7-8 setae on inner margin and 2 setae at outer distal angle; carpus 1.8 times longer than merus, with 12-13 setae on inner margin, 7-8 setae on outer margin; propodus 1.1 times longer than carpus, with 9-10 setae on both margins; dactylus bifid.

Pereopod 6 (Fig.8P): basis 3.4 times as long as wide; ischium 55% as long as wide, with 4-5 setae on outer distal area; merus 2/3 as long as ischium, with 4-6 setae on inner margin and 2 setae at outer distal area; carpus 1.7 times longer than merus, with more than 10 setae on inner margin; propodus a little longer than carpus, with 7-8 setae on both margins; dactylus bifid.

Pereopod 7 (Fig.8Q): basis 3.5 times as long as wide, with 5-6 short setae on inner margin and 4-5 setae on outer margin; ischium 0.7 times as long as ischium, with 4 setae on inner margin and 2 setae on outer distal area; merus 0.7

times as long as ischium, with 6-7 setae on inner margin and 2 setae at outer distal angle; carpus 1.4 times longer than merus, with 7-8 setae on both margins; propodus 1.1 times longer than carpus, with more than 9 setae on both margins; dactylus bifid.

Penes (Fig.8R) fusiform, 4.5 times as long as wide.

Pleopod 1 (Fig.8R): endopod straight, with a series of more than 12 denticles on distal area; exopod triangular.

Pleopod 2 (Fig.8S): endopod long, tapering toward the tip; exopod elongated triangular, with 3 spinules on outer margin.

Pleopod 3 (Fig.8T): endopod elliptical, with 3 short setae; exopod rounded.

Pleopod 4 (Fig.8U): endopod rectangular; exopod triangular.

Pleopod 5 (Fig.8V): endopod rectangular; exopod small and semicircular.

Uropod (Fig.8W): basis triangular; endopod 3/4 as long as basis; exopod half length of endopod, with a tuft of setae.

Female differs only in the sexual characters.

Etymology: From the name of the island where the specimens were collected.

Remarks: The present new species is most closely allied to *Spherillo shuriensis* Nunomura, 1990, but the former is separated from the latter in the following features:(1)deltoid exopod of male second pleopod,(2) longer stylus of male second pleopod, (3) numerous aesthetascs on antennule, and (4) relatively shorter peduncle of antennae.

***Spherillo punctatus* n.sp.**

(Japanese name: Hanten-koshibiro-dangomushi new)

(Fig.9)

Material examined: 2♂♂(1♂ holotype, 7.2 mm in body length and 1♂ paratype, 6.0 mm in body length) and 4 ♀♀(1♀ allotype, 8.5 mm in body length and 3 ♀♀ paratypes, up to 8.3 mm in body length), Oosato,Oct. 25, 2001,coll.Yasutoshi Katakura; 2♂♂15♀♀, Sueyoshi, Oct. 6, 2003, coll. Yasutoshi Katakura; 1♀, Nakanogou, Oct.24, coll. Yasutoshi Katakura; 6♀♀, Sueyoshi, Oct. 6, 2003, coll. Yasutoshi Katakura; 2♀♀, Borawazawa, May 26, 1998, coll. Noboru Nunomura;26♀♀, Taredo, May 25, 1998 coll. Noboru Nunomura; 1♀, Hachijofuji, ichi-no-torii, July 25, 1979,coll. Masami Hasegawa and Hideaki Watanabe. Type series will be deposited as follows: Holotype (TOYA Cr-13263) allotype (TOYA Cr-13264) and 3 paratypes (TOYA Cr-13265～13267) at Toyama Science Museum, 2 paratyp es(NSMT Cr- 16861) at the National Science Museum, Tokyo.

Description: Body 2.3 times as long as wide, excluding uropods and antennae. Color blackish, with a pair of circular paler area and a small black spot in each paler area. Surface almost smooth. Cephalon round in dorsal view and high in anterior view. Schisma of pereonal somite 1 (Fig.18K) deep, ventral tooth of pereonal somite 2 large. Eyes large and reniform and each eye with 10-12 ommatidia. Pleotelson hour-grass-shaped.

Antennule (Fig.9C) 3-segmented; segment 1 relatively stout; segment 2 (Fig.18K) square; terminal segment with 4 aesthetascs at the tip. Antenna (Fig.9D) relatively short composed of 5 peduncular and 2 flagellar segments. The mutual length of two flagellar segments is 2:7; each segment with many setae. Right mandible (Fig.9E): pars incisiva 3-toothed; lacinia mobilis not chitinized and weakly 2-toothed; 2 plumose setae; processus molaris represented by a single seta. Left mandible (Fig.9F): pars incisiva 3-toothed; lacinia mobilis chitinzed and 3-toothed; 2 plumose setae behind the lacinia mobilis; processus molaris represented by a single seta. Maxillula: inner lobe (Fig. 9G) with 2 relatively short plumose setae at the tip. outer lobe (Fig. 9 H) with 10 simple teeth at the tip; Maxilla (Fig. 9I) broad and weakly bilobed in two lappets. Maxilliped (Fig.9J): endite rectangular, with 2 spurs and 2 setae on distal margin of endite palp; with 3 setae on inner margin and a tuft of setae at the tip.

Pereopod 1 (Fig.9L): basis rectangular, 3.4 times as long as wide, with 8-9 setae on inner margin; ischium 55% as long as basis, with 9-10 setae on inner margin; merus 3/4 as long as ischium, with 5-6 setae on inner margin and a seta at outer distal angle; carpus 1.2 times longer than merus, with 6-7 setae including a long bifid one on inner margin; propodus 1.2 times longer than carpus, with 16-20 setae on inner margin and 14-15 setae on outer margin; dactylus bifid.

Pereopod 2 (Fig. 9M): basis 3.5 times long as wide, with 3 setae on inner margin and 11-12 setae on outer margin;

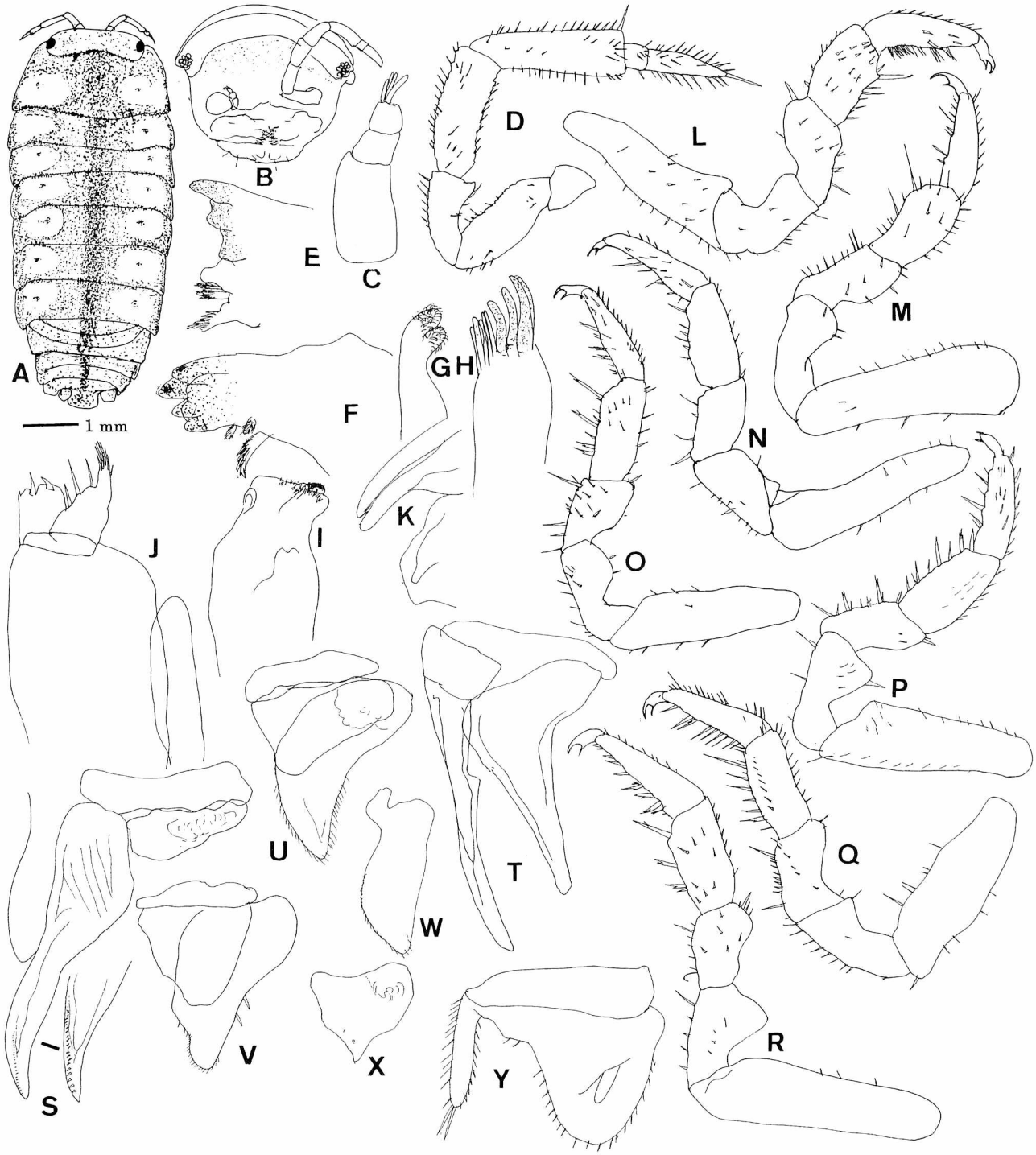

Fig.9 ***Spherillo punctatus*** **n.sp.**
A. Dorsal view. B: Frontal view of Cephalon. C: Antennule. D:Antenna. E : Right antenna. F: Left antenna. G: Inner lobe of maxillula. H: Outer lobe of the same. I: Maxilla. J: Maxilliped. K: Ventral view of pereonal somites 1-2. L:-R: Pereopods 1-7. S: Penes and pleopod 1. T:Pleopod 2. U: Pleopod 3. V: Pleopod 4. W: Endopod of pleopod 5. X: Exopod of the same. Y: Uropod (All: Holotype male).

ischium 55% as long as basis, with 2 setae on outer margin; merus 0.6 times longer than ishium, with 10 setae on inner margin and 3-4 setae on outer margin; carpus 1.3 times longer than merus, with 7-10 setae on both margins and 7-8 setae on outer margin; propodus as long as carpus, with 8 setae on inner margin and 9-10 setae on outer margin; dactylus bifid.

Pereopod 3 (Fig.9N): basis 3.9 times as long as wide, with 3-4 setae on both margins; ischium half length of basis, with 9-10 setae on inner margin; merus 2/3 as long as ishium, with 4 setae on inner margin; carpus as long as ischium, with 6 setae on inner margin and 7-8 setae on outer margin; propodus a little longer than carpus, with 7-8 setae on inner margin and 5-7 setae on outer margin; dactylus bifid.

Pereopod 4 (Fig.9O): basis 3.6 times as long as wide, with 3-4 setae on both margins; ischium 55% as long as ischium, with 6-8 setae on inner margin and 2 setae on outer margin; merus 0.7 times as long as ischium, with 4 longer bifid setae and 3-5 shorter setae on inner margin and a seta at outer distal angle; carpus 1.7 times as long as merus, with 4 bifid setae and 3-4 simple short setae on inner margin and 7-8 short setae on outer margin; propodus as long as carpus, with 6 bifid setae on inner margin and 16-18 setae on outer margin; dactylus bifid.

Pereopod 5 (Fig. 9P): basis 3.0 times as long as wide, with 9-10 setae on both margins and a seta on inner distal angle; ischium 0.6 times as long as basis, with 3-4 setae on inner margin and a seta on outer margin; merus 0.6 times as long as ischium, with 2 longer setae, 7-8 setae on inner margin and a seta on outer distal angles; carpus 1.2 longer than merus, with 8-10 setae on inner margin and 7-8 short setae on outer margin; propodus a little longer than carpus, with 3 longer setae and 3-4 shorter ones on inner margin and 10-11 setae on outer margin; dactylus bifid.

Pereopod 6 (Fig.9Q): basis 2.9 times as long as wide, with a seta at inner distal angle and 4-6 setae on both margins; ischium 0.6 times as long as basis, with 8-10 setae on inner margin and a seta on outer distal area; merus 3/4 as long as ischium, with 2 longer and 9-11 shorter setae on inner margin; carpus 1.2 times longer than merus, with 9-11 longer and several shorter setae on inner margin and 11-12 setae on outer margin; propodus as long as carpus, with 9-10 setae on inner margin and 15-16 setae on outer margin; dactylus bifid.

Pereopod 7 (Fig. 9R): basis 3.6 times as long as wide; ischium 0.4 times as long as basis and outer margin roundly protruded, with 5 setae on inner margin; merus 0.8 times as long as basis, 7-8 setae on inner margin and 4-5 setae on outer margin; carpus 1.4 times longer than merus, with 3 bifid setae and a few of short setae on inner margin and 8-9 setae on outer margin; propodus 1.1 times longer than carpus, with 5 bifid and more than 5 simple setae on inner margin and 9-10 setae on outer margin; dactylus bifid.

Penes (Fig.9S) fusiform, 5 times as long as wide.

Pleopod 1 (Fig.9S) endopod straight, with a series of more than 30 denticles on distal area; exopod rounded rectangular.

Pleopod 2 (Fig.9T): endopod long; exopod elongated triangular.

Pleopod 3 (Fig.9U): endopod roundly protruded, with many setae around the margin; exopod rectaugular.

Pleopod 4 (Fig.9V): endopod with 2 setae; exopod triangular.

Pleopod 5 (Fig.9W and X): endopod rectangular; exopod triangular.

Uropod (Fig.9 Y): endopod 6 times as long as wide; exopod rather short.

Female: Differs only from male in sexual characters and not protuded outer margin of iscluium of pereropod 7.

Etymology: "*punctatus*" means "spotted" in Latin. This species has a pair of darker spots on dorsal surface,

Remarks: The present new species is most closely allied to *Spherillo tomiyamai* recorded from Nakoudo-jima, Bonin Islands, especially in bearing bifid and trifid setae on pereopods but the former is separated from the latter in the following features:(1)protruded of outer margin of ischium of pereopod 7, (2)square exopod of male first pleopod,(3)less numerous trifid setae on pereopods, (4)color pattern of dorsal surface, (5)longer endopod of male second pleopod and (6)longer antennae.

Family Porcellionidae

Porcellio scaber Latreille, 1804

Material examined: 5♂♂3♀♀, Hachijo Tropical Plant Park, Ookagou, Mar.23, 2005, coll. Yasutoshi Katakura.

Porcellionides pruinosus (Brandt, 1833)

Material examined: 1♀, Ookagou, Mar 21, 1988, coll. Yasutoshi Katakura; 1♀, Yaene, Oct.7, 2003, coll. Yasutoshi Katakura.

Family Armadillidiidae

Armadillidium vulgare (Latreille, 1804)

Material examined: 2♀♀, Tareto, May 25, 1998, coll. Noboru Nunomura; 1♂, Kashitate, May 27, 1998, coll. Noboru Nunomura; 1♂3♀♀, Borawazawa, coll. Noboru Nunomura; 4♂♂3♀♀, Ookagou, Mar. 21, 1988. coll. Katakura; 3♂♂1♀, Kominato, coll. Noboru Nunomura; 1♀, Yaene, Oct. 7, 2003, coll. Yasutoshi Katakura; 1♂2♀♀, Sueyoshi, Oct. 6, 2003, coll. Yasutoshi Katakura; 9♂♂14♀♀, Hachijo Tropical Plant Park, Ookagou, Mar. 21, 1988 coll. Yasutoshi Katakura; 7♂♂8♀♀, Nakanogou, Oct. 24, 2001, coll. Yasutoshi Katakura; 2♂♂13♀♀, Oosato, Oct. 6 2003. coll. Katakura; 1♂, Yokomaura, May 24, 1998, coll. Noboru Nunomura;1♀, Kashitate, May 24, 1998, coll. Noboru Nunomura; 1♀, Kashitate, May 27, Kashitate, coll. Noboru Nunomura; 1♂5♀♀, Hachijofuji, ichi-no-torii, July 25, 1979, coll. Masami Hasegawa and Hideaki Watanabe.

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References

Nunomura, N., 1979. *Ligia boninensis*, a New Isopod crustacean from Haha-jima Island, Bonin Islands, Japan. *Bull. Toyama Sci. Mus.*,1:37- 40.

Nunomura, N., 1983. Studies on the Terrestrial Isopod Crustaceans in Japan I. Taxonomy of the Families Ligiidae, Trichoniscidae and Olibrinidae. *Bull. Toyama Sci.* Mus., 5; 23-68.

Nunomura, N., 1986. Studies on the Terrestrial Isopod Crustaceans in Japan III. Taxonomy of the Families Scyphaciade (continued), Marinoniscidae, Halophilosciidae. Philosciidae and Oniscidae. *Bull. Toyama Sci. Mus.,* 9: 1-72.

Nunomura, N., 1987. Studies on the Terrestrial Isopod Crustaceans in Japan Ⅳ. Taxonomy of the families Trachelipidae and Poraellionidae. *Bull. Toyama Sci. Mus.*, 11: 1-76.

Nunomura, N., 1990. Studies on the terrestrial isopod crustaceans in Japan Ⅴ. Taxonomy of the families Armadillidiidae, Armadillidae and Tylidae, with taxonomic supplements to some other families. *Bull. Toyama Sci. Mus.*, 13: 1-58.

Nunomura, N., 1991. Studies on the terrestrial isopod crustaceans in Japan Ⅵ. Further supplements to the taxonomy. *Bull. Toyama Sci. Mus.*, 14: 1-26

Nunomura, N., 1992. Studies on the terrestrial isopod crustaceans in Japan Ⅶ. Supplements to the taxonomy-3. *Bull. Toyama Sci. Mus.*, 15(20): 1-23.

Nunomura, N., 1999. Sea shore isopod crustaceans collected from Izu Islands, Middle Japan. *Bull. Toyama Sci. Mus.*, 22: 7-38.

Nunomura, N., 2000. Terrestrial Isopod and Amphipod Crustaceans from the Imperial Palace, Tokyo. *Mem. Natn.Sci. Mus. Tokyo*, (35): 79-97.

Nunomura, N., 2006. Terrestrial and freshwater Isopod Crustaceans in the coast of Sagami Nada, Central Japan. *Mem. Natn. Sci. Mus. Tokyo*, (42) : 275-283.

Schmalfuss, H., 2003. World Catalog of terrestrial isopod (Isopods: Oniscidea) stuttugarrter *Beitr. Naturk Ser.*A 654 : 1 -341.